組合せ論セミナーのお知らせ

日時：11 月 8 日（金）16:00～17:30

場所：情報科学研究科棟 3F322 室

Speaker： Dianhua Wu 教授 (広西師範大学)

Title：Constructions of (q, K, λ, t, Q) Almost Difference Families

Abstract:
The notion of a (q, k, λ, t) almost difference family (ADF for short) has been introduced and studied by Ding and Yin (2008) as a useful generalization of the notion of a (q, k, λ, t) almost difference set. Some results had been obtained for the existences of (q, k, λ, t)-ADFs. In this paper we consider, more generally, (q, K, λ, t, Q)-ADFs, where $K = \{k_1, k_2, : : : , k_r\}$ is a set of positive integers and $Q = (q_1, \ldots , q_r)$ is a given block-size distribution sequence. The characteristic sequences of a cyclic ($q, k, 0, t$)-ADF form an optical orthogonal code which have many applications in a code division multiple access communication using a fiber optical channel. A necessary condition for the existence of a (q, K, λ, t, Q)-ADF is given, and a construction for (q, K, λ, t, Q)-ADFs is also presented, the construction is a variants of the famous Wilson's lemma on evenly distributed differences. By using the construction and computer searching, several infinite classes of ($q, \{3, 4\}, \lambda, t, Q$)-ADFs are constructed.